

**GAO**

United States General Accounting Office

Report to the Ranking Minority Member,  
Committee on Governmental Affairs,  
U.S. Senate

August 1996

# NASA PERSONNEL

## Challenges to Achieving Workforce Reductions



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National Security and  
International Affairs Division

B-272392

NASA PERSONNEL: Challenges to  
Achieving Workforce Reductions

August 2, 1996

The Honorable John Glenn  
Ranking Minority Member  
Committee on Governmental Affairs  
United States Senate

Dear Senator Glenn:

You requested that we examine the National Aeronautics and Space Administration's (NASA) efforts and plans to decrease its staffing levels. In the early 1990s, NASA had projected an essentially flat workforce profile of about 25,500 full-time equivalent (FTE)<sup>1</sup> employees through fiscal year 2000. NASA currently plans to lower this figure to about 17,500 by fiscal year 2000. This report discusses NASA's progress and its approach to achieving further reductions.

## Results in Brief

By the end of fiscal year 1996, NASA will be about half way to its goal. NASA's success in reducing FTEs is principally due to the use of voluntary separation incentive payments, or "buyouts," to eligible employees in exchange for their voluntary retirement or resignation from the government. About two-thirds of the 4,000 employees who left NASA in 1994 and 1995 took buyouts.

NASA does not yet have fully developed plans to reduce its personnel level by about another 4,000 FTEs to meet its overall goal by fiscal year 2000 and may not be able to do so without involuntarily separating employees. NASA projections show that voluntary attrition should meet the downsizing goal through fiscal year 1998, but NASA estimates that attrition will not provide sufficient losses by fiscal year 1999. Thus, NASA officials intend to start planning a reduction-in-force during fiscal year 1998, if enough NASA employees are not retiring or resigning voluntarily.

NASA's ability to achieve the 17,500-FTE goal is subject to major uncertainties, including the shifting of program management from headquarters to field centers and the award of a single prime contract for the management of the space shuttle at Kennedy Space Center. Also, in 1995, NASA proposed space science institutes as a potentially beneficial approach to maintain or improve the quality of its science program in the

<sup>1</sup>According to Office of Management and Budget (OMB) guidance, an FTE generally includes 260 compensable days, or 2,080 hours, excluding overtime and holiday hours.

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face of organizational streamlining. However, its efforts to create such institutes have been discontinued because proposed legislation, which would have eased the transfer of its employees to the institutes, was not favorably reviewed in the executive branch. The institutes could have had a potentially large FTE-reduction impact. NASA intends to seek alternatives to the institutes.

In view of the uncertainties affecting NASA's ability to achieve significant reductions in personnel to meet likely future budgets, Congress may wish to consider requiring NASA to submit a workforce restructuring plan for achieving its fiscal year 2000 FTE goal.

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## Background

Since NASA was established in 1958, its civil service workforce has fluctuated widely. In 1967, during the Apollo program, the workforce was at about 35,900. In the 1970s, due to unfunded programs, the workforce shrank, with several thousand employees involuntarily separated during the middle of the decade. By 1980, the workforce had stabilized near 21,000. It remained close to that level until 1986, when the space shuttle Challenger accident forced a reexamination of NASA. In the mid- and late 1980s, NASA began some ambitious new programs and its workforce began to grow again in the latter part of the decade and into the early 1990s—peaking in 1992 at more than 25,000.

When the current administration took office in 1993, it initiated steps to reduce the size of the overall federal workforce. An executive order in February 1993 directed that the workforce be reduced by 4 percent (100,000 employees) by the end of fiscal year 1995. Then, in September 1993, the National Performance Review (NPR) recommended a reduction of 252,000 federal employees by 1999. By the time Congress passed the Federal Workforce Restructuring Act in March 1994, which legislated an overall reduction of 272,900 federal employees by 1999, NASA was already cutting its workforce, which was more than 24,000 in fiscal year 1993, in response to the executive order and the NPR recommendation. NASA currently plans to achieve an FTE level of about 17,500 employees by fiscal year 2000, an overall reduction of about 8,000 from its previously planned level for that year.

The 17,500-FTE goal is predicated on the President's fiscal year 1996 budget, which requested \$14.3 billion for NASA, with future projections of \$13.9 billion, \$13.7 billion, \$13.4 billion, and \$13.2 billion, respectively, for fiscal years 1997 to 2000. NASA's fiscal year 1996 budget was approved at

\$13.8 billion. In a message to NASA employees regarding the fiscal year 1997 budget request of \$13.8 billion, the NASA Administrator stated that, "Beyond FY 1997, there are obvious uncertainties. The out-year projections are significantly lower than previous projections: \$13.1 billion for FY 1998; \$12.4 billion for FY 1999; and \$11.6 billion for FY 2000." He went on to say that

"As Administrator, I have decided not to take any precipitous action in FY 1996 to work toward these figures because to do so would involve a major disruption to our employees. It would not be fair to put them through this process to reach projections that are not hard and fast."

## Personnel Reductions in Recent Years

Through fiscal year 1995, NASA reduced its previously planned fiscal year 2000 FTE goal by over 3,000 FTEs, and it was planning to increase the aggregate reduction to about 4,000 FTEs in 1996. As shown in table 1, NASA had just over 24,700 FTE personnel in fiscal year 1993. This number dropped below 23,100 in fiscal year 1995, and it is expected to decrease to about 21,500 in fiscal year 1996.

**Table 1: Full-Time Permanent (FTP) and FTE Staffs for Fiscal Years 1993-95**

Occupation	1993	1994	1995
Scientists and engineers	13,321	12,728	12,042
Professional administrative	4,692	4,460	4,221
Clerical	2,599	2,370	2,100
GS technician	2,420	2,294	2,024
Wage board	648	564	487
FTP staff	23,680	22,417	20,874
FTE staff	24,731	24,265	23,075

Source: NASA.

## Buyouts Were the Principal Means of Achieving the Reductions

A key feature of the Federal Workforce Restructuring Act of 1994 was the authorization for agencies to pay up to \$25,000 to separating workers—a buyout. Initially, NASA planned to offer this buyout to no more than 825 personnel. However, after nearly 2,000 employees indicated interest, NASA decided to offer 1,252 buyouts in 1994. This buyout was accepted by 1,178 employees. The buyout allocations focused on Headquarters, Marshall Space Flight Center, Lewis Research Center, and Kennedy Space Center—the installations most affected by the space station's redesign and program management restructuring. No occupational categories were

targeted in the 1994 buyout, but members of the Senior Executive Service, attorneys at Kennedy Space Center and Marshall Space Flight Center, and astronauts were not permitted buyouts, in part, because NASA felt that critical skills would be lost if these employees separated.

After the 1994 buyout, NASA was confronted with an even larger downsizing challenge when the President's fiscal year 1996 budget request reduced NASA's budgets through fiscal year 2000 by \$4.6 billion. NASA announced its intention to cover this reduction by cutting its infrastructure, including personnel, rather than canceling or cutting back program initiatives. The NASA Administrator tasked the agency to conduct a zero base review (ZBR), which included examining every civil service and support contractor position in NASA to find and eliminate overlap and over staffing. One of the review's conclusions was that NASA's civil service workforce could be reduced to about 17,500 by the end of the decade without eliminating core programs. In anticipation of lower numbers of personnel, NASA offered another buyout in 1995. All employees were eligible and it was accepted by 1,482 employees.

The 2,660 buyouts represented about 66 percent of the more than 4,000 employees who left NASA during fiscal years 1994 and 1995, as shown in table 2.

**Table 2: Total and Buyout Losses in Fiscal Years 1994-95 by General Occupational Category**

Occupation	Total reductions	Number of buyouts	Percent buyouts
Scientists and engineers	1,870	1,224	65
Professional administrative	1,003	663	66
GS technician	484	353	73
Clerical	577	361	63
Wage board	104	59	57
<b>Total</b>	<b>4,038</b>	<b>2,660</b>	<b>66</b>

Source: NASA.

NASA's scientists and engineers had the largest reductions in numbers, but the smallest proportionate reductions, as shown in table 3. Consequently, as of September 30, 1995, scientists and engineers made up almost 58 percent of NASA's FTP employees—slightly higher than a few years ago when they were about 56 percent of NASA's workforce.

**Table 3: Net Loss Numbers and Percentages by General Occupational Category for Fiscal Years 1993 Through 1995**

Occupation	Hires	Losses	Net loss	FTPs	Percent of loss
<b>Scientists and engineers</b>					
1993	174	414	240	13,321	1.8
1994	342	938	596	12,728	4.7
1995	231	932	701	12,042	5.8
<b>Professional administrative</b>					
1993	106	235	129	4,692	2.7
1994	160	554	394	4,460	8.8
1995	90	449	359	4,221	8.5
<b>GS technicians</b>					
1993	10	91	81	2,420	3.3
1994	34	184	150	2,294	6.5
1995	10	300	290	2,024	14.3
<b>Clerical</b>					
1993	92	159	67	2,599	2.6
1994	171	323	152	2,370	6.4
1995	102	254	152	2,100	7.2
<b>Wage board</b>					
1993	6	21	15	648	2.3
1994	33	60	27	564	4.8
1995	15	44	29	487	6.0

Source: NASA.

NASA personnel managers consider the two buyouts a success. Given the rate of employee turnover experienced in the 2 years preceding the buyouts, they estimate that as many as 2,000 workers left the agency sooner than they would have without a buyout.

## Future Personnel Reductions May Require Involuntary Separations

As previously noted, buyouts accounted for about two-thirds of the employees leaving NASA in fiscal years 1994 and 1995. However, the buyout authority has expired. Without buyout authority, NASA personnel projections as of March 1996 showed that voluntary retirements and other separations should enable the agency to continue to meet its downsizing goals through fiscal year 1998, but attrition would not be sufficient in fiscal year 1999 to meet the proposed budgets of about half of NASA's centers or for the agency as a whole. As a result, NASA personnel officials said a reduction-in-force would be required by late fiscal year 1998.

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One element of the expected difficulty in 1999 is that about 70 percent of NASA's planned personnel reductions in the 1996-2000 period are scheduled in 1999 and 2000, with most of those—1,730 out of 2,822—scheduled for 1999. A NASA personnel official explained that reductions were being scheduled for late in the period, in part, to allow sufficient time to work out the details of the conversion to a space shuttle single prime contract at Kennedy Space Center. With the difficult launch schedule associated with the space station, NASA officials were concerned about mission performance if they lowered personnel levels too quickly at Kennedy.

One of NASA's major concerns is ensuring a proper skill mix throughout the agency. Currently, NASA's strategy to deal with this concern is to rely on normal attrition, limited hiring focused on the most critical areas, and redeploying employees. NASA officials intend to refine their workforce planning efforts later this year. They stated that these refinements will include developing more detailed demographic information and turnover predictions, identifying specific skill-mix requirements, determining skill excesses and shortages, developing cross-training and relocation opportunities, and implementing specific programs and policies to help achieve an appropriate skill mix for the 17,500 FTE level.

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## Unknown Personnel Impacts of Management and Operational Changes

### Program Management Shifting From Headquarters to Field Centers

NASA's efforts to meet its planned FTE level while avoiding involuntary separations will be affected by the results of several management and operational changes, including the shifting of program management from headquarters to field centers and the use of a single prime contractor for managing the space shuttle at Kennedy Space Center.

NASA is in the process of shifting program management control from its headquarters program offices to the field centers. Prior to the ZBR, the NPR recommended several management changes at NASA, including reducing its headquarters workforce by 50 percent, eliminating duplication of functions at headquarters and the centers, and reducing management layers. The ZBR, which was undertaken to develop strategies to meet funding reductions, proposed giving the centers increased management control. The ZBR defined the centers' missions and designated each as a Center of Excellence; that is, having preeminence within the agency for a recognized area of technical competence. A center's mission denotes its role or responsibility in supporting NASA's five major enterprises: Mission to Planet Earth, Aeronautics, Human Exploration and Development of Space, Space Science, and Space Technology. All program implementation

responsibilities previously performed by headquarters offices are being reassigned to the field centers. In essence, it is intended that headquarters focus on what the agency does and why, while centers focus on executing programs.

Table 4 shows the proposed ZBR reductions for program and staff offices in headquarters, and table 5 shows proposed reductions by NASA installation as of March 1996.

**Table 4: Headquarters Reductions Proposed by the ZBR**

<b>Office</b>	<b>June 1995 FTE ceiling</b>	<b>FY 2000 FTE goal</b>	<b>FTE reduction</b>	<b>Percent of reduction</b>
Space Flight	156	88	68	44
Aeronautics	101	61	40	40
Space Communications	47	28	19	40
Space Science	121	68	53	44
Life and Microgravity Sciences and Applications	78	49	29	37
Mission to Planet Earth	80	58	22	28
Space Access and Technology	102	63	39	38
Safety and Mission Assurance	86	46	40	47
Staff offices	866	550	316	36
<b>Total</b>	<b>1,637</b>	<b>1,011</b>	<b>626</b>	<b>38</b>

Note: As of June 1996, the headquarters offices' FTE levels were under further review.

Source: NASA.

**Table 5: FTE Reduction Goals by Installation**

<b>Installation</b>	<b>FTE allocations</b>		<b>Reduction</b>	
	<b>1996</b>	<b>2000</b>	<b>Number</b>	<b>Percent</b>
Ames Research Center	1,660	1,415	245	15
Dryden Flight Research Center <sup>a</sup>	450	607	+157	+35
Goddard Space Flight Center	3,770	3,071	699	19
Johnson Space Center	3,154	2,559	595	19
Kennedy Space Center	2,270	1,135	1,135	50
Langley Research Center	2,622	2,454	168	6
Lewis Research Center	2,396	2,059	337	14
Marshall Space Flight Center	3,157	2,519	638	20
Space Station Program Office	349	349	0	0
Stennis Space Center	219	208	11	5
NASA Headquarters	1,508	1,112	396	26
<b>Total</b>	<b>21,555</b>	<b>17,488</b>	<b>4,067</b>	<b>19</b>

<sup>a</sup>Increase due to transferring aircraft from other centers, a consolidation that was uncertain at the time of our work.

Source: NASA.

### Personnel Reductions Due to Single Prime Contract for Space Shuttle Management

In November 1995, NASA selected United Space Alliance—a Rockwell International and Lockheed Martin partnership—as the prime contractor for space flight operations. Although NASA will retain responsibility for launch decisions, NASA personnel will be less involved in day-to-day operations. Thus, fewer civil servants will be required to manage the program. However, conversion efforts are still underway and have not reached the point where NASA officials are able to judge the full extent to which NASA personnel will be involved in overseeing the contractor's operations.

Despite this uncertainty, NASA estimates that it should be able to make personnel reductions in the range of 700 to 1,100 FTEs at the Kennedy Space Center. Because the length of the transition period is uncertain, NASA personnel officials show these reductions occurring in 1999 and 2000. However, NASA officials believe the personnel reductions at this center will not be precipitous, but will occur more gradually over the transition period.<sup>2</sup>

<sup>2</sup>The NASA Administrator has reaffirmed the agency's commitment to shuttle safety and said he would not downsize the agency's staffing in any way that would jeopardize shuttle safety. NASA recently requested its Aerospace Safety Advisory Panel to review the space shuttle program, concentrating on its safety. The Panel's report is expected by the end of November.

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## Further Efforts to Establish Space Science Institutes Discontinued

During the course of the ZBR, the concept of institutes was identified as a potentially beneficial approach to maintain or improve the quality of national science in the face of organizational streamlining. The recommendation was made to reshape NASA's science program under a reinvention strategy to bind NASA's science program more closely to the larger community that it serves. The strategy involved "privatization" of a portion of NASA's science program into a number of science institutes. The purpose for establishing science institutes was to preserve and improve the quality of NASA's contributions to national science in the face of reductions in the size of the federal workforce. Under its Science Institute Plan, NASA intended to select universities, not-for-profit organizations, or consortia to operate 11 institutes under competitively awarded contracts or cooperative agreements to conduct research supporting the specific missions of selected NASA field centers, among other purposes.

NASA was working with OMB to identify ways to make the transition to institutes attractive to NASA personnel. Proposed legislation for the agency's fiscal year 1997 authorization bill was sent to OMB. The legislation would have facilitated the institutes' employing of NASA personnel by relaxing current laws that restrict the employment of former federal workers by the private sector and enabling NASA employees to retain the bulk of their federal retirement benefits should they accept an offer of institute employment. Each institute would make its own decisions on hiring NASA employees.<sup>3</sup> This proposal was not favorably reviewed in the executive branch, in part because of concern that covering former NASA personnel with federal benefits after they became private-sector employees would set a precedent to do the same for other federal employees whose jobs are privatized. As shown in table 6, the potential loss of civil service work years as a result of creating science institutes would vary greatly from center to center.

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<sup>3</sup>Under the proposed legislation, NASA employees in charge of selecting the universities or corporations to operate the new institutes would be prohibited from accepting employment at any institute.

**Table 6: Potential Space Science Institute Impact on Civil Service Work Years**

<b>NASA Field Centers and Proposed Science Institutes</b>	<b>Approximate loss of civil service work years</b>
Ames Research Center	
Astrobiology Institute	334
Goddard Space Flight Center	
Goddard Institute for Space Studies	20
National Space Science Data Center	12
Johnson Space Center	
Biomedical Research Institute	20
Astromaterials Institute	30
Langley Research Center	
Atmospheric Science Institute	237
Lewis Research Center	
Microgravity Institute	371
Space Power Institute	259
Marshall Space Flight Center	
Global Hydrology and Climate Center	168
Microgravity Institute (Materials & Biotechnology)	374
Space Science Institute (Astrophysics & Space Physics)	164
<b>Total</b>	<b>1,989</b>

Source: NASA.

According to NASA officials, the extent to which NASA personnel would voluntarily leave to accept the institutes' offers of employment would depend largely on the enactment of the proposed legislation designed to ease such transfers. Without such legislation, NASA officials believe that the number of employees voluntarily leaving NASA would likely be negligible.

On June 7, 1996, the NASA Administrator announced that, due to objections to the proposed legislation from the Office of Government Ethics, the Office of Personnel Management, and OMB, efforts to establish new science institutes other than the Biomedical Research Institute at Johnson Space Center would be discontinued. The Administrator stated that NASA did not intend to migrate civil service functions and positions to institutes absent legislative relief. However, NASA will continue to consider alternative options to the proposed institutes.

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## Matter for Congressional Consideration

NASA recently requested buyout authority from Congress. We have previously reported that savings from buyouts generally exceed those from reductions-in-force and that savings from downsizing largely depend, among other things, on whether the workforce restructuring has been effectively planned.<sup>4</sup>

As previously noted, NASA is currently involved in developing future workforce plans to help ensure a proper skill mix to support its programs and activities. In commenting on a draft of this report, NASA said it had a human resource planning activity underway in support of its fiscal year 1998 budget request. We believe that the results of this effort would provide useful information to Congress in reviewing both NASA's request for buyout authority and its fiscal year 1998 budget request. Therefore, Congress may wish to consider requiring NASA to submit a workforce restructuring plan for achieving its fiscal year 2000 FTE goal.

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## Agency Comments

NASA officials concurred with our report and stated that it is a good synopsis of the progress made and the problems remaining. NASA said that civil service staffing at the Kennedy Space Center may not be able to go below 1,360 FTES. NASA indicated that it would reassess the size of the reduction in preparing its fiscal year 1998 budget request. NASA also summarized its reasons for wanting new buyout authority. NASA's comments are included in appendix I.

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## Scope and Methodology

We researched NASA's workforce history, reviewed NASA workforce statistics and centers' and headquarters' downsizing plans, examined workforce reviews and studies prepared by NASA discussing its downsizing activities, and discussed with NASA officials how the most recent reductions were achieved. We also examined projected workforce statistics through fiscal year 2000 and obtained information on NASA's approach to achieving future downsizing goals.

We reviewed workforce statistics from three field centers—Goddard Space Flight Center, Marshall Space Flight Center, and Lewis Research Center—and we reviewed the centers' strategies for meeting future reductions. We relied primarily on information contained in NASA's Civil Service Workforce Report for most of our statistical data. We did not independently verify NASA's statistics. The civil service workforce totals

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<sup>4</sup>Federal Downsizing: The Cost and Savings of Buyouts Versus Reductions-in-Force (GAO/GGD-96-63, May 14, 1996). Also, see Workforce Reductions: Downsizing Strategies Used in Selected Organizations (GAO/GGD-95-54, Mar. 13, 1995).

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discussed in this report reflect NASA's planning at the time of our review. The likelihood they will continue to be revised to reflect changes is high.

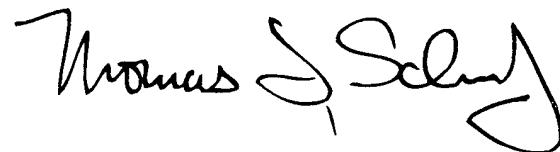
We conducted our review principally at NASA headquarters, Washington, D.C., and the Goddard Space Flight Center, Greenbelt, Maryland. We also discussed personnel-related issues with NASA officials at Marshall Space Flight Center, Huntsville, Alabama, and Lewis Research Center, Cleveland, Ohio. We performed our work from June 1995 to June 1996 in accordance with generally accepted government auditing standards.

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Unless you publicly announce its contents earlier, we plan no further distribution of this report until 14 days from its issue date. At that time, we will send copies of this report to appropriate congressional committees, the NASA Administrator, the Director of OMB, and other interested parties upon request.

If you or your staff have any questions concerning this report, please contact me on (202) 512-4841. The major contributors to this report were Frank Degnan, Lawrence Kiser, and Roberta Gaston.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Thomas J. Schulz".

Thomas J. Schulz  
Associate Director,  
Defense Acquisitions Issues



# Comments From the National Aeronautics and Space Administration

Note: We are not publishing the three enclosures to NASA's comments. These enclosures included copies of external correspondence and suggestions for technical changes, which we incorporated where appropriate.

National Aeronautics and  
Space Administration  
**Office of the Administrator**  
Washington, DC 20546-0001



JUL 22 1996

Mr. Louis J. Rodrigues  
Director, Defense Acquisitions Issues  
General Accounting Office  
Washington, DC 20548

Dear Mr. Rodrigues:

We have reviewed the GAO draft report, "NASA Personnel: Challenges Remain to Achieve Reductions to Meet Overall Goal." The report is a good synopsis of the progress made and the problems remaining.

The Agency has taken another look at the downsizing goal that the Zero Base Review set for the Kennedy Space Center. Civil service staffing there may not be able to go below about 1,360 full-time equivalents (FTE). NASA will be reassessing the size of the reduction as it prepares its fiscal year 1998 budget request.

NASA has a human resources planning activity underway as part of its FY 1998 budget preparation. The Associate Administrator for Human Resources and Education issued instructions on May 23, 1996, (enclosure 1) for NASA Centers to define the makeup of the workforce needed in FY 2000 and to determine to what extent the target workforce can be reached through voluntary means of attrition, reassignment, and training. This will lead to consideration of additional policies, authorities, or strategies that are needed to ensure that NASA has the correct workforce mix in place at the right time.

New buyout authority would be of immediate benefit to NASA in accomplishing the additional workforce downsizing that is required. As the GAO report makes clear, buyouts have already enabled NASA to cut nearly 2,700 positions. Unfortunately, the Governmentwide buyout program did not go far enough or last long enough for the scope of NASA's planned downsizing.

The benefits of buyout authority for NASA would be multiple and far reaching. Downsizing could be accomplished much more quickly than with normal attrition with large cumulative salary and benefits savings. It would avoid the known, severe adverse impacts of a Reduction-in-Force (RIF). It would avoid the cost of inevitable, protracted RIF-related litigation. Diversity gains would be maintained rather than eroded. NASA skill balances would be maintained, and cultural changes would be accelerated. When managed properly, all of this could be accomplished within current budget allocations, at a cost savings over RIF.

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**Appendix I**  
**Comments From the National Aeronautics**  
**and Space Administration**

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Above all, it would enable us to maintain our restructuring momentum and provide a superior aeronautics and space program.

We have recently begun discussions with our authorization and appropriation committees. Enclosure 2 is a letter from our Administrator to the chairman of our Senate appropriation subcommittee. This letter sets forth the specific case for the reason why NASA needs new buyout authority that goes beyond the limits established in the last round of buyouts.

Enclosure 3 comprises technical comments on specific sections of the GAO draft report. If we may be of further assistance, please call Stanley Kask at 358-2215.

Sincerely,



J. R. Dailey  
Acting Deputy Administrator

3 Enclosures